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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/626,146 07/26/00 NAKAYAMA

T 106364

EXAMINER

MM91/1101

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ALEXANDRIA VA 22320

NADAV, O

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

11/01/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/626,146

Applicant(s)
Nakayama

Examiner
ORI NADAV

Art Unit
2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 6, 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above, claim(s) 1-14 and 22-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

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DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on 7/26/2001 has not been considered, because the list of all patents, publications, or other information submitted for consideration, together with a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed, are not present in the application file.

Election/Restriction

2. Applicant's election with traverse of claims 15-21 which read on the embodiment of figure 13, in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the search and examination of the entire application could be made without serious burden. This is not found persuasive because the application includes three separate and distinct inventions. The search and examination of includes three separate and distinct inventions can not be made without serious burden..

The requirement is still deemed proper and is therefore made FINAL.

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Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5. There is ^{no}_A support for the claimed limitations of a substrate having a thinner portion at the corner portion, as recited in claim 17, in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 15-21, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Newman (5,455,456) or Freyman et al. (6,124,637) in view of Nakamura (5,729,051) or Distefano (5,776,796).

Newman teaches in figure 3 a semiconductor device comprising a semiconductor chip 308, a substrate 106, 202 on which the semiconductor chip is mounted, and resin 302 for sealing the semiconductor chip, wherein the semiconductor device has an outer shape having a corner portion (figure 1) and wherein a part of the substrate is indented further inward than an edge surface of the resin.

Freyman et al. teach in figure 7 a semiconductor device comprising a semiconductor chip 41, a substrate 22 on which the semiconductor chip is mounted, and resin 61 for sealing the semiconductor chip, wherein the semiconductor device has an outer shape having a corner portion (figure 5) and wherein a part of the substrate is indented further inward than an edge surface of the resin.

Newman and Freyman et al. do not teach a part of the substrate is indented further inward than an edge surface of the resin at the corner portion. That is, Newman and Freyman et al. do not teach the sealing resin covering the substrate.

Nakamura teach in figure 5 sealing resin 4 covering the corners of substrate 2.

Distefano teach in figure 1 resin 40 covering the substrate 16.

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It would have been obvious to a person of ordinary skill in the art at the time the invention was made to cover the substrate of Newman and Freyman et al.'s device with the sealing resin in order to provide better protection for the device.

Regarding the processing limitations recited of a substrate being formed by cutting apart a larger substrate, these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

Regarding claim 16, prior art teach a substrate at the corner portion forms a shape that is indented in the opposite direction from the direction in which the corner portion protrudes, and thus an edge surface of the substrate is indented further inward than the edge surface of the resin.

Regarding claim 17, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to form a thinner portion in the substrate at the corner portion in prior art's device in order to improve the processing steps of making the device.

Regarding claim 19, since the cover can comprise resin, and the resin is covering the top of the substrate, then prior art teach a cover provided at the corner portion,

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between the substrate and the resin. Furthermore, since the resin covers only the top surface of the substrate, then the part of the substrate that is indented further inward than the edge surface of the resin is exposed.

Regarding claims 20 and 21, it would have been obvious to a person of ordinary skill in the art at the time the invention was made connect prior art's device to a circuit board and to electronic equipment in order to use the device in a particular application.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References E-H and N are cited as being related to devices comprising indented substrates.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722

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and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(703) 308-8138**. The Examiner is in the Office generally between the hours of 7 AM to 3 PM (Eastern Standard Time) Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached at **(703) 308-2772**.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

Ori Nadav

October 29, 2001

Steven Loke
Primary Examiner

A handwritten signature in cursive script that reads "Steven Loke".